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THE CONTRIBUTION OF SCIENCE TO RELIGIOUS EDUCATION

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As I conceive it, religious education has the same aim as all education has or ought to have; namely, the development of character. While it does not ignore the reason, it seeks primarily to affect the will, and to supply an adequate motive for directing the conscious choices that must daily be made between the good and the less good, so that they shall be ever for the better. As with all education, religious education has selected, more or less empirically, certain material as suitable for bringing about the desired training. Conspicuous among this material is the study of the folklore, tradition, legislation, history, poetry, wisdom, prophecy, biography, and letters which make up the Scriptures, and the developmental history and theology of the church. Supplementary and interpretative material is found in the literature of other oriental peoples, in the geography and economics of the Holy Land, in the results of higher criticism of the Scriptures, and elsewhere.

Religious education, having been committed so largely to the voluntary teaching and intermittent efforts of the Sunday school, has not kept pace with secular education, if I may so distinguish that which deals chiefly with the intellect. Many improvements can be made in method and in the choice and organization of material, profiting by the suggestions to be derived from modern investigations in philosophy, psychology, and pedagogy. I am asked to say what principles have been developed by the devotees of physical sciences that may be available and helpful to the teacher of religion.

I confess I have nothing to say to the teacher who, turning his back on reason, holds a theory of inspiration of the Bible which is sometimes expressed by the allegation: "I believe everything in the Bible, from lid to lid." Such a one, in my judgment, can only do harm as a religious educator; for his every pupil will be

forced, sooner or later, to a false choice between reason and blind adherence to dogma, miscalled "faith."

It goes without saying that the physical sciences, as to their subject-matter, deal with the nature and constitution of our material environment, near and remote, living and dead. Naturally, this has been always a prominent subject of man's interest; but only within modern times has he been able to interpret material things sufficiently to form an organized body of knowledge and theory properly called science. Earlier more fragmentary and imperfect interpretations have been successively discarded; and it must not be forgotten that not a few of these are embodied in the Scriptures, as well as in other literatures.

The first suggestion that the scientific man must make, trite though it may be, is that in using the Scriptures for religious education every interpretation of the phenomena of nature shall be so handled that no modern interpretation will be understood to impeach the religious value of the book under study. It is perhaps worth noticing that these are the very points at which the Scriptures are attacked popularly; and the sole ground for the attack is that these interpretations of natural phenomena have been taught to children as true, but are recognized as at variance with present knowledge or theory; hence there must be a "conflict" between religion and science (so the non-sequitur runs), and the modern man in such an alternative chooses the science.

"Reconciling" biblical accounts of natural events with scientific ones is a waste of time; and, what is worse, it leads to intellectual dishonesty, because it requires an amount of juggling with words that deceives only the unobservant. Restating a wonderful event in modern terms is peculiarly difficult, and the attempt is usually futile because the information regarding it is generally too meager to permit a satisfactory explanation. To "explain" the firing of Elijah's thrice-wetted pile by lightning is simply to assume data that are wholly imaginary.

So the biblical story of creation should be treated as an early interpretation, used to teach the relation of God to the process, as the writer understood it. To identify the "days" of creation with geological epochs is absurd, and more likely to harm faith than help

it, as I can testify from personal experience. That we have now a different interpretation of His way of working should emphasize concordance in the essential point rather than discordance in the nonessential.

Nor should stress be laid upon the "truth" of the modern interpretations of nature in contrast with the "mistaken views" of the olden time. That we have come nearer to the truth is obvious from the fact that we have learned better how to use natural forces and can predict events from theory. Yet neither give us absolute assurance that we have final truth; we have only good working hypotheses in the main; and at any time our interpretation of nature in particulars is liable to change. This lack of "stability," instead of being a defect of science and a reproach against it, as so often thought, is of its essence and its glory. If the recent radical modification of so fundamental a theory as the atomic, and the mathematical disproof of Laplace's nebular hypothesis, do not cause distrust of physics and astronomy, why should the creation story be made a stone of stumbling and the Jonah story a rock of offense?

Our second and more fundamental suggestion must be that what religious education may gain from science is not so much material of instruction as spirit and attitude. The most important contribution of science to the progress of humanity is not the facts it has discovered nor the forces it has harnessed; it is the spirit it has engendered. Consequently, therein is its most valuable contribution to religious education. That not merely affects the details of practice, but determines the attitude of the teacher toward all his thinking and all his material. Naturally, the scientific spirit is not easy to define or to describe, and it is still more difficult to attain. By no means all who profess and call themselves scientific men have attained it, just as not all called Christian have Christ's spirit.

Let me disclaim at the outset any pretension of science to a monopoly of the scientific spirit. That it is so called indicates only the kind of study which first evoked it, not the only discipline which develops it. It is the outcome of a method, not of a subject; and the method may properly be designated scientific, whether applied in the study of chemistry, or history, or the Bible.

By describing the qualities induced by the scientific spirit I may

indicate in a measure the nature of the method which develops such qualities.

In the first place, there is requisite an inquiring and pure mind. The child has both; and if education were what it ought to be, he would remain eager to know and ready to acquire knowledge. But inquiry is too often blunted by memorizing forms of words without actual meaning, and the appetite for knowledge is cloyed by book-learning. He who would educate himself or teach others must be eager to know the truth and keep his mind open to truth, whatever its source. He must come to every subject of study with no opinion that precludes evidence which may reshape it; without prejudice; ready to revise any conclusion in the light of new data. It is very necessary to distinguish between study and research. Too often the reading of one text is called study, and the consultation of encyclopaedias and special works is called "research." Not everyone, indeed, is so situated as to have the tools for research, and fewer are competent to investigate. But research goes to things themselves or to original sources. To read books about plants may yield information to the reader; it can never furnish knowledge, which is the purpose of research, though it may be necessary to avoid duplicating research. Moreover, scientific *training* can be gained only from following the method of research. No amount of reading about science will avail.

It is obvious, then, that the many must be guided by the few in subjects that they cannot investigate. But one does well to select wisely his counselors, and not to hear one alone, or one side alone of a controverted question. And, when one has accepted an "authority," or formed an opinion after having heard the evidence, such adopted knowledge and opinion should ever be held lightly and be strictly enjoined from shutting the gate to the entrance of new, and especially of conflicting, data.

As the scientific student is constantly seeking to formulate his beliefs in clearer fashion and to gain clearer conceptions of the relations of known facts, he becomes convinced that neither consensus of belief nor individual statement can be accepted as final authority. "The life-blood of science," says Royce, "is distrust of individual belief as such." The final word has not been spoken in any depart-

ment of knowledge, and one must always be ready to change the good for the better. He who has become an "authority" himself knows best how little right he has to speak *ex cathedra*.

It is often thought a mark of strength of character and intellect to hold tenaciously to opinion, and not to be driven to and fro by every wind of doctrine; to believe something and to defend it valiantly against the insidious attacks of unbelief. But it is worthy of notice that controversies do not whistle about the foundations of religion, but about its chimney-pots and finials. Moreover, open-mindedness is not to be confused with weakness; it is rather a mark of strength of mind, and, in religious matters, of strength of faith. It was Uzzah, not David, who sought to stay the tottering ark. Many a one, to his own undoing, actually stops his progress in religious knowledge lest he go astray.

In the second place, since no subject upon which new light can be thrown can ever hope to formulate finally its conceptions, the scientific spirit enjoins skepticism and speculation. Not skepticism as an end, however, but as a means—a means of attaining better knowledge and more. Only because he doubts the accuracy or completeness of present statement will one be impelled to investigate in the hope of reaching a fuller truth. This habit, necessary for the investigator, is often imitated by the pseudo-investigator; but the long ears are apt to betray the superficiality of the lion's skin. To doubt and to proclaim it publicly can serve no good purpose, since doubt has no value except as it leads toward certainty.

No inquiry can proceed without continual thought as to its possible outcome and the formation of tentative hypotheses for the explanation of observed facts. These speculations afford basis for further experiment and, if confirmed, become the theories or the doctrines of science. Such feeling after truth if haply he may find it is an important factor in the work of the scientific man. But speculations must be properly valued; they too are a means—not an end. By the uninstructed they are often acclaimed as new truth, or combated as dangerous error, or despised as idle vaporizing. Yet they have their place and use; though the vast majority of speculations must, in the nature of research, be discarded, just as worn-out dredges

go to the scrap-heap when the canal is dug, they first make a way in the desert for fertilizing streams.

In the third place, the scientific spirit is marked by a judicial attitude toward every question. The personal equation must be eliminated or evaluated. It may not be known to all that in reading delicate instruments the greatest pains must be taken to avoid the errors due to personal peculiarities, and even to the desire or expectation that the readings result in a particular way. But it is perfectly possible to show the effects of prejudice even upon our sensations. How much more necessary, then, to guard against its perversion of our judgment! This suppression of the personal factor is perhaps the most difficult to attain, and is the part of scientific training which it takes longest to perfect.

It must be confessed that much of our educational training tends to the acceptance of authority and to the adoption of the attitude of the advocate rather than of the judge. In so far, it comes short of its aim. If the child is so trained, it is not easy for the man to come to a better way. Yet early mistakes can be corrected, and it behooves the religious educator to profit by the mistakes of the past.

Here, then, is the contribution of science to religious education; and not to it alone, but to all education. To attain the scientific spirit is to discard the knowledge of the past whenever a deeper insight has been gained; to refuse to be restrained by present knowledge against receiving new truth or searching for it as for hid treasure; to gain liberty to prove all things that we may hold fast that which is good; to make sure that we allow no prejudice to warp our judgment or our reasoning; to hear every cause that concerns us as the thoughtful judge, never to plead it as the blind partisan.